REMARKS

The present Amendment amends claims 1, 3, 5-9 and leaves claims 2, 4 and 10 unchanged. Therefore, the present application has pending claims 1-10.

Figs. 2-4 stand objected to being that the Examiner alleges that these figures should be designated by a legend "Prior Art". Filed on even date herewith are Replacement Sheets adding the legend "Prior Art" to Figs. 2-4. Therefore, this objection is overcome and should be withdrawn.

Claims 1, 3, 4 and 7-9 stand rejected under 35 USC §102(e) as being anticipated by Mikkonen (U.S. Patent No. 6,587,457); claim 2 stand rejected under 35 USC §103(a) as being unpatentable over Mikkonen; claim 5 stand rejected under 35 USC §103(a) as being unpatentable over Mikkonen in view of Maxemchuk (U.S. Patent No. 6,411,810; claim 6 stand rejected under 35 USC §103(a) as being unpatentable over Mikkonen in view of Kim (U.S. Patent No. 6,510,145); and claim 8 stand rejected under 35 USC §103(a) as being unpatentable over Mikkonen in view of Demetrescu (U.S. Patent No. 6,647,262). These rejections are traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1-9 are not taught or suggested by Mikkonen, Maxemchuk, Kim or Demetrescu whether taken individually or in combination with each other or any of the other references of record as suggested by the Examiner.

Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

Amendments were made to the claims so as to more clearly recite that the present invention is directed to a packet transfer apparatus, a base station and a

wireless communication system which avoid packets from being discarded due to buffer overflow in a wireless base station when a radio transmission rate decreases and to effectively use the radio transmission rate resource when the transmission rate increases. In order to achieve the described object of the present invention, each of the base stations creates, as shown in Fig. 6 of the present application, a control message (flow control message 611, 616) including transfer rate information of packet transmission between the base station and each of the mobile stations under control of the base station, and transmits the control message to a packet transfer apparatus connected to a communication network periodically.

The packet transfer apparatus (PFC) stores packets received from the communication network correlating the packets with the destination mobile station (or session identifier), reads out packets destined for specific mobile stations in accordance with the contents of the control message received from each of the base stations, and transmits the packets to the base station to which the specific mobile stations are connected.

As shown in Fig. 8 of the present application, in the first embodiment of the present invention, the control message includes a plurality of records each indicates session ID, transmission rate and a next sequence number of a packet to be transmitted. The packet transfer apparatus reads out stored packets in accordance with each of the records of the control message, and transmits the packets to the base station from which the control message was received. By transferring packets to each base station in accordance with the flow control message, buffer overflow in the base station is avoidable even if the capacity of buffer memory is small.

Claims 1-8 are intended to cover the first embodiment of the present invention and claim 9 is intended to cover the packet transfer apparatus described as the second embodiment of the present invention.

The above described features of the present invention as now more clearly recited in claims 1-9 are not taught or suggested by any of the references of record, particularly Mikkonen, Maxemchuk, Kim and Demetrescu, whether taken individually or in combination with each other as suggested by the Examiner

According to Mikkonen, for example as illustrated in Fig. 5 and as described in col. 10, line 41 through col. 12, line 3 thereof, when a mobile IP router 5 detects that a data flow which it has received from the internet network is one that should be provided with a radio flow with a certain quality of service (block 501), the mobile IP router 5 examines whether a sufficient supply of resource is available in data transmission between the wireless terminal MT and the access point (base station) 4 for obtaining the desired quality of service level for a flow FID (block 502). If sufficient supply of resource is available, the mobile IP router 5 starts signaling with the wireless terminal through the access point 4. See col. 10, lines 56-65. After the signaling procedure and allocation of resources at the wireless terminal and the access point, an active QoS flow is established between the mobile IP router 5 and the wireless terminal as shown by block 514 in Fig. 5.

The present invention as now more clearly recited in the claims relates to a packet transfer control to be carried out in the active QoS flow 514. There is no such teaching in Mikkonen since it specifically describes that no action is performed during the active QoS flow as in the present invention as recited in the claims.

Mikkonen reserves the resource in data transmission between the wireless terminal MT and the access point through the signaling procedure, so that the mobile IP router 5 can transfer packets received thereafter from IP network to the access point (wireless base station) freely. That is, since Mikkonen has no need of controlling the transmission rate of packets received thereafter, it is difficult to find any teaching of the features of the present invention as now more clearly recited in the claims in Mikkonen as alleged by the Examiner.

Thus, Mikkonen fails to teach or suggest receiving means for receiving a control message from each of said base stations periodically, the control message including transfer rate information of packet transmission between the base station and each of mobile stations under control of the base station as recited in the claims.

Therefore, Mikkonen fails to teach or suggest the features of the present invention as recited in the claims. Accordingly, reconsideration and withdrawal of the rejection of claims 1, 3, 4 and 7-9 under 35 USC §102(e) as being anticipated by Mikkonen, and the rejection of claim 2 under 35 USC §103(a) as being unpatentable over Mikkonen are respectfully requested.

The above noted deficiencies of Mikkonen as described above are not supplied by any of the references of record, particularly Maxemchuk, Kim and Demetrescu. Therefore, combining the teachings of Mikkonen with one or more of Maxemchuk, Kim and Demetrescu still fail to teach or suggest the features of the present invention as now more clearly recited in the claims.

Specifically, Mikkonen taken in combination with one or more of Maxemchuk, Kim and Demetrescu still fails to teach or suggest receiving means for receiving a

control message from each of said base stations periodically, the control message including transfer rate information of packet transmission between the base station and each of mobile stations under control of the base station as recited in the claims.

Therefore, Mikkonen taken in combination with one or more of Maxemchuk, Kim and Demetrescu fails to teach or suggest the features of the present invention as recited in the claims. Accordingly, reconsideration and withdrawal of the rejection of claim 5 stand under 35 USC §103(a) as being unpatentable over Mikkonen in view of Maxemchuk, the rejection of claim 6 under 35 USC §103(a) as being unpatentable over Mikkonen in view of Kim, and the rejection of claim 8 stand rejected under 35 USC §103(a) as being unpatentable over Mikkonen in view of Demetrescu are respectfully requested.

Applicants acknowledge the Examiner's indication in the Office Action that claim 10 is allowed.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-9.

In view of the foregoing amendments and remarks, applicants submit that claims 1-10 are in condition for allowance. Accordingly, early allowance of claims 1-10 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to

the deposit account of MATTINGLY, STANGER & MALUR, P.C., Deposit Account No. 50-1417 (520.40489X00).

Respectfully submitted,

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